ASG Series

CE

? **Reliably detects inclined transparent glass**

Ideal for flush-mounting in robot end-effecter.

? **Unique optical system allows stable detection regardless of warpage or inclination of glass**

Unprecedented reliability in inclined object detection is realized by the use of two red LED light sources

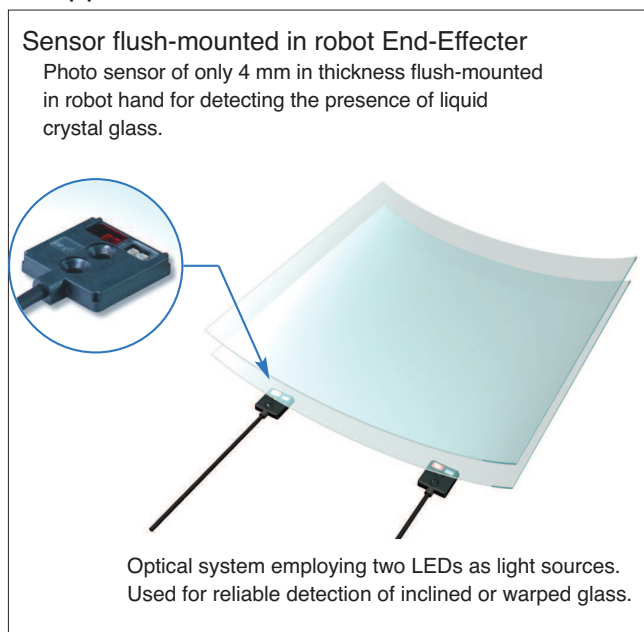? **Thin (4mm) embedded amplifier photo sensor**

Counterbores for M3 countersunk screws convenient for flush-mounting in robot end-effecter.

? Type

Detection method	Detecting distance	Model		Operation mode	Output mode
		NPN output	PNP output		
Diffuse reflective	20?	**ASG-S20R**	**ASG-S20RPN**	Light ON	Open collector output
		ASG-S20RV	**ASG-S20RVPN**		
Convergent reflective	3-15?	**ASG-Z15R**	**ASG-Z15RPN**		
		ASG-Z15RV	**ASG-Z15RVPN**		

? Applications

Sensor flush-mounted in robot End-Effecter

Photo sensor of only 4 mm in thickness flush-mounted in robot hand for detecting the presence of liquid crystal glass.

Optical system employing two LEDs as light sources. Used for reliable detection of inclined or warped glass.

? **Difference between ASG-S20R and ASG-Z15R**

● ASG-S20R is a diffuse reflective type sensor with a wide activation range.

If the detected glass is warped, the detecting distance can be 25 mm at maximum.

● ASG-Z15R is a convergent reflective sensor with a wide activation range.

If the glass to detect is warped, the detecting distance can be 18 mm at maximum. The sensor is not activated by transparent glass in contact with the sensor.

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? Rating/Performance/Specification

TYPE	NPN type	**ASG-S20R**	**ASG-S20RV**	**ASG-Z15R**	**ASG-Z15RV**
	PNP type	**ASG-S20RPN**	**ASG-S20RVPN**	**ASG-Z15RPN**	**ASG-Z15RVPN**
Detection method		Diffuse reflective sensor for glass detection		Convergent reflective sensor for glass detection	
Detection object		Transparent glass			
Detecting distance		Transparent glass 20㎜ or less. 25㎜ or less. (*)		Transparent glass 3 - 15㎜ 18㎜ or less. (*)	
Power supply		12-24V DC ±10% / Ripple 10% or less			
Light source		2 red LEDs			
Output mode	NPN type	25mA or less, 30mA or less (*1)			
	PNP type	30mA or less			
Operation mode		Light ON			
Output mode	NPN type	NPN open collector output: Sink current 50 mA (30 VDC or less)			
	PNP type	PNP open collector output :Source current 50 mA (30 VDC or less)			
Short circuit protection	NPN type	Provided			
	PNP type	Provided	—	Provided	—
Indicator		Operation indicator : orange LED			
Sensitivity adjustment		—	Provided	—	Provided
Response time		0.5 ms or less			
Sensitivity adjustment		Case:Polybutylene terephthalate Window:Polycarbonate		Case:Polybutylene terephthalate Window:Polybutylene terephthalate	
Connection		Attached cable (Outer dimension: dia. 2.7㎜, 0.15 mm² 3 cores 2m)			
Weight		Approx. 30 g			
Accessory		Operation manual			

The detecting distance is the range which you can set for the reflector. The sensor can detect an object even in extremely short range.
(*) The maximum distance means the distance to the farthest part of an inclined transparent glass. This sensor does not have a sensitivity adjustment volume and must be used with no object interfering with the detection in the surrounding area.
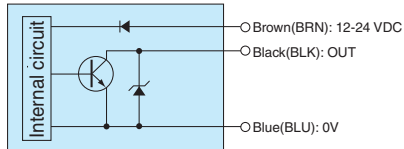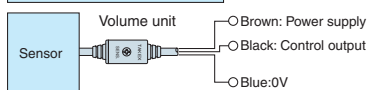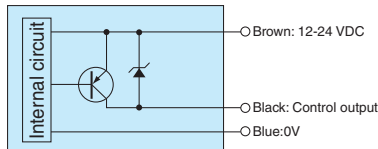(*1) ASG-S20RV、ASG-Z15RV

? Environmental Specification

Ambient light	5,000 lx or less
Ambient temperature	−10 - +55 °C (non-freezing)
Ambient humidity	35-85%RH (non-condensing)
Vibration	10 - 55 Hz / 1.5 mm double amplitude / 2 hours each in 3 directions
Protective structure	IP40

? Input/Output Circuit and Connection

- **NPN output**
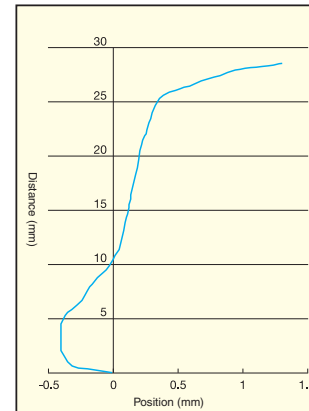 · Model : ASG-S20R   ASG-Z15R
  · Model : ASG-S20RV   ASG-Z15RV

Internal circuit
- Brown(BRN): 12-24 VDC
- Black(BLK): OUT
- Blue(BLU): 0V

- **PNP output**
  · Model : ASG-S20RPN   ASG-Z15RPN
  · Model : ASG-S20RVPN   ASG-Z15RVPN

Internal circuit
- Brown: 12-24 VDC
- Black: Control output
- Blue:0V

Sensor — Volume unit
- Brown: Power supply
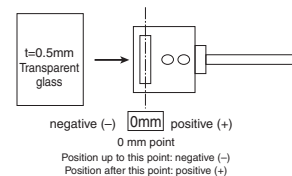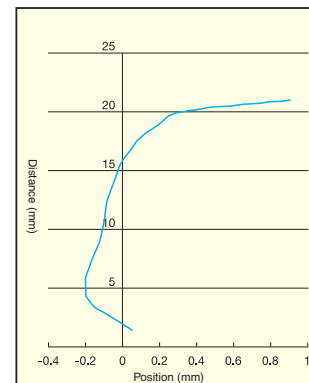- Black: Control output
- Blue:0V

? The output transistor turns off when load short circuit or overload occurs.
Check the load and turn the power back on.
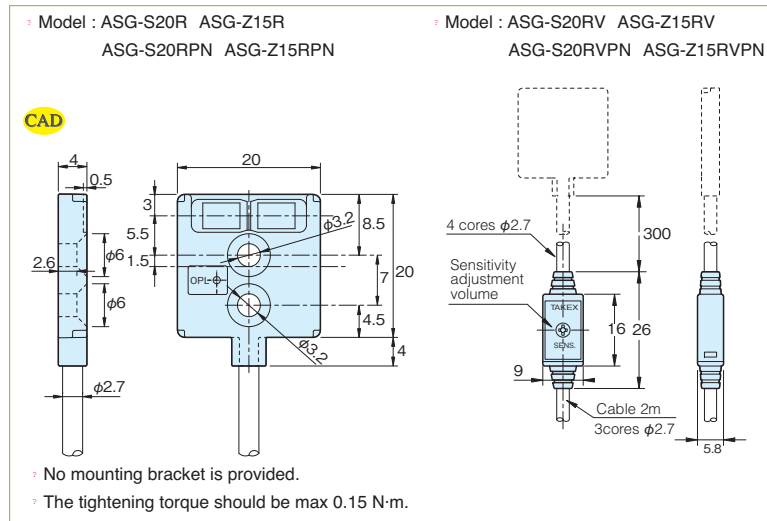
? Response Curves: Activation Position (Typical)

● ASG-S20R

● ASG-Z15R

t=0.5mm Transparent glass

negative (−)   0mm   positive (+)
0 mm point
Position up to this point: negative (−)
Position after this point: positive (+)

? Dimensions (in mm)

? Model : ASG-S20R ASG-Z15R
   ASG-S20RPN ASG-Z15RPN

CAD

? Model : ASG-S20RV ASG-Z15RV
   ASG-S20RVPN ASG-Z15RVPN

4 cores φ2.7
Sensitivity adjustment volume
300
16 26
9
Cable 2m
3cores φ2.7
5.8

? No mounting bracket is provided.
? The tightening torque should be max 0.15 N·m.

CAD To download CAD data including dimensions, please visit www.takex-elec.co.jp/index_e.html.

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